

Making Sense of Germ Control to Stay Healthy

by Susan S. Aronson

Infectious diseases can cost many days of fun and learning for children and adults. Some, but not all illness, is inevitable. You can do a lot of prevention yourself. You also need an arrangement with a health professional to observe your practices from time to time, and advise your program about how to prevent and manage infectious disease. Start by practicing easy routines to keep everyone healthier, without becoming germ-phobic. Good reference materials can help you to plan and implement preventive policies and procedures. Some references are particularly useful to look up what you need to know when there is a problem.

Health professional advice

Directors should arrange for routine ongoing health consultation from a skilled public or private health professional. Expect that the health consultant will visit the facility at least quarterly (monthly if infants and toddlers are in care) to observe health and safety practices and provide routine advice on health and safety issues. Research done by the University of North Carolina School of Public Health found that having regular visits and a trusted relationship with a skilled child care health consultant is effective in reducing illness, absence for illness, and the need

for costly medical care for children and staff (Kotch, 2004). Getting help in an urgent situation will be easier and more useful if such a relationship is in place as well. Studies done in Pennsylvania and California confirm many of these findings and show that early educators highly value their health consultants once they have them (Aronson & Fiene, 1993; Alkon, Sokal-Guitierrez & Wolff, 2002; Crowley, 1990, 1997; Dellert, 22004). Evidence of the effectiveness of health consultation visits led the National Association for the Education of Young Children to adopt a criterion for routine visits by health consultants in the accreditation standards implemented in 2006 (NAEYC).

Training, for assuming the role for child care health consultant or using one, is available both in-person and via distance learning. Every state has trainers of child care health consultants who are graduates of the National Training Institute for Child Care Health Consultants at the University of North Carolina School of Public Health in Chapel Hill. Also, directors and health professionals can use a DVD called "Health and Safety Consultation in Child Care" as a distance learning program that provides continuing education credit from the University of Pittsburgh. The DVD can be ordered from the Pennsylvania Chapter of the American Acad-

emy of Pediatrics and the American Academy of Pediatrics at www.ecels-healthychildcarepa.org or www.aap.org.

How can early educators keep children healthy?

Collaboration among parents, educators, and health professionals is the key to keeping children healthy. Everyone should have a source of health care that is as close to the ideal of a "medical home" as possible. A medical home is an accessible, continuous, comprehensive, coordinated, compassionate, culturally competent, and family-centered source of health care. An ideal medical home sends reminders to families whose children are due for routine preventive care services.

Unfortunately, many constraints keep health care providers from becoming the ideal medical home. Few have any financial incentive to provide the recall and

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reminder notices that many dentists and veterinarians now use. Even when informed by their health providers, many families do not view the complex schedules and frequent visits for preventive health care as a priority. Children may receive vaccines at sick-care visits and never come back for their check-ups. Some can't cooperate with certain screening tests during a particular office visit and then don't return to fill that gap. For many families, obtaining recommended preventive health services for their children becomes a priority only when educators insist that parents provide evidence of their children's up-to-date immunizations and screening tests as a condition of their children's participation in the education program.

Using nationally recommended schedules for preventive health services is difficult for everyone. Checking health records by hand is tedious and very time-consuming. The types of services and intervals between services change from one age group to another. Very young children need frequent updates and many doses of vaccine. A child who is up-to-date at the beginning of a program year can become overdue for services a month or two later. All states require documentation of up-to-date immunization, but only some require evidence that required screening tests were provided.

To help reduce the burden of health record review for providers of early education and child care, the Pennsylvania Chapter of the American Academy of Pediatrics (PA AAP) developed a service that centers can use on the Internet. This Internet Application is called WellCare-Tracker™. Subscribers to the service receive a secure, password-protected Internet location to enter, analyze and retrieve reports for data that the staff enter from child health records. No special computer, operating system, or software is needed. It works with any computer with a connection to the Internet. The software evaluates the dates of

service entered for individual children, then prints out a list of which services are up-to-date, which are due now, which are overdue, and which will be overdue in 3 months. Few users need to use the help desk to get started. Users enter their secure password to access the data for their center(s). They can print out an updated report at any time, to see what one or a group of children need as of the print date. Then, center staff can give an individual report to parents to bring to the child's medical home. With the clearly printed list, the health professional can fill gaps in documented services. Subscription fees for this service are low, set at a rate that covers the cost to the PA AAP for maintaining the service. For more information, go to www.wellcaretracker.org.

Another way to keep children healthy is to be sure that they have appropriate nutrition, rest, and exercise. Human milk has a unique composition that helps protect infants from illnesses. For infants, support breastfeeding of infants for at least the first year of life with two measures:

- 1) provide comfortable places for mothers to breastfeed at drop-off and pick-up, and
- 2) have storage and procedures to safely feed the mother's expressed human milk when the mother is not available to do direct feedings herself.

After infancy, encourage good nutrition by teaching children to "eat colors" — to get a healthy balance of foods. Many good sources of curriculum are available. For some new materials, check out Sesame Workshop. In 2005, this PBS pioneer launched a new program called "Healthy Habits for Life." Their multi-year initiative aims to help preschoolers and their caregivers live healthier lives. Working with coalition partners that include federal agencies, NAEYC, and The Ad Council, Sesame Workshop will distribute multi-media, developmentally appropriate content

about how to keep healthy. For more about this program, visit www.sesameworkshop.org.

Daily exercise is essential. Exercising outdoors not only promotes strength-building, but also gives children a chance to breathe air that has a lower burden of germs than indoor air that is shared by many people. When the children are outside, open the windows and ventilate the indoor spaces. Fresh air dilutes the germs put into the air by so many people occupying the same air space. If active play occurs indoors, be sure these areas are especially well-ventilated. Remember that deep breathing of germ-laden indoor air during exercise can challenge body resistance to disease.

Every program needs plans for times when children and staff are too ill to participate comfortably, or have an illness that poses an increased risk to others. Many illnesses are most contagious before symptoms occur. Others continue to spread at high rates for a long time after people recover and no longer feel ill. Children who become ill during a weekend or vacation may not have exposed others at the program during the pre-symptom period. In that situation, staying home for a day or two more might reduce the spread of germs.

Pay special attention to children who have conditions or circumstances that make them prone to infectious illnesses. For example, some children are incompletely immunized or unimmunized because they are too young to have received all their vaccines, or their parents have not obtained the vaccines they need. Some children travel to countries where certain types of germs are more common. Some have family members who travel to such places. Some have contact with someone who has been in prison, or is a substance abuser. Work with public health authorities to manage these situations.

Reminders

- The frequency of infectious illness can be reduced.
- Having a health professional visit, observe program operations, and collaboratively plan with staff how to reduce the risk of infectious disease for everyone.
- With a few facility adjustments and some practice, easy routines keep everyone healthier, without becoming germ-phobic.

Which types of infections make children sick?

Close contact in child care facilitates the spread of many respiratory, gastrointestinal, systemic, and skin infections. The types of germs that cause these infections are the same as those that cause illness in children and adults in the community (Osterholm M, et al, 1992; Pickering & Osterholm, 1997). Viruses cause many infections. Bacteria, parasites, and fungi can make children sick, too. Young children's immature immune systems do not resist infection as well as when they have more experience. So, infection spreads easily in group care settings. Also, children's behaviors contaminate the environment with body fluids and promote self-inoculation of body openings.

Viral respiratory infections are the most common cause of illness. Runny noses, coughs, and other cold symptoms are annoying. Usually, these symptoms go away in a week or two in otherwise healthy children. Common infections become less frequent as the child grows older. Each episode of illness builds the child's immunity to help resist the next encounter with that type of germ.

A few germs cause serious disease in some children. Some spread easily from one child to another because it takes so few germs to make someone sick. Infec-

tions spread by:

- direct contact with people or objects
- fecal-oral contamination (an infected person's feces contaminates something that transfers germs to other objects that bring the germs into someone's mouth)
- respiratory route (someone who is infected puts droplets that contain germs into the air that someone else inhales, or such droplets contaminate surfaces that are touched and brought into someone else's body)
- body fluid contamination (blood, urine, saliva)

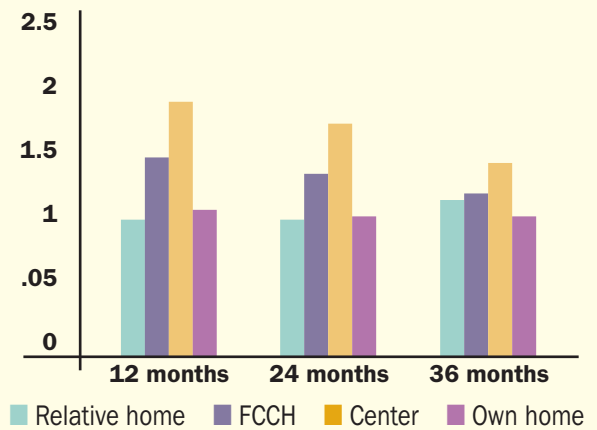
Each of these routes of spread has characteristics that offer opportunities to control infection.

As shown in Figure 1 through Figure 3, the risk of upper respiratory infection and ear infections is higher for infants in group care compared with those cared for exclusively at home. This risk decreases as children grow older and spend more time in group care (Hurwitz, Gunn, Pinsk, & Schonberger, 1991; The National Institute of Child Health and Human Development Early Child Care Research Network, 2001; Ball, Holberg, Aldous, Martinez, & Wright, 2002). Attendance in center-based programs during preschool years seems to protect children against common upper respiratory infections through the elementary school years, presumably because of immunity acquired from early exposure to infectious disease agents.

The frequency of gastrointestinal illness is lower than for respiratory disease. The difference between group-participants

Figure 1:
Upper Respiratory Infections by Type of Care

Odds of illness in each type of care compared with odds of illness if only in own home, by age of child.



Source: NICHD, Archives of Pediatrics & Adolescent Medicine, 2001, 155:481-488.

and children cared for only by their parents is less than for respiratory disease also. Vomiting and diarrhea is somewhat elevated for infants in center-based arrangements and for preschool-age children who receive care in the homes of relatives.

Since infectious disease is common in all young children, every episode of childhood infection should not be blamed on group care participation. Noting the protective effect of early exposure in later childhood may comfort parents whose young children are in group care and have one infection after another.

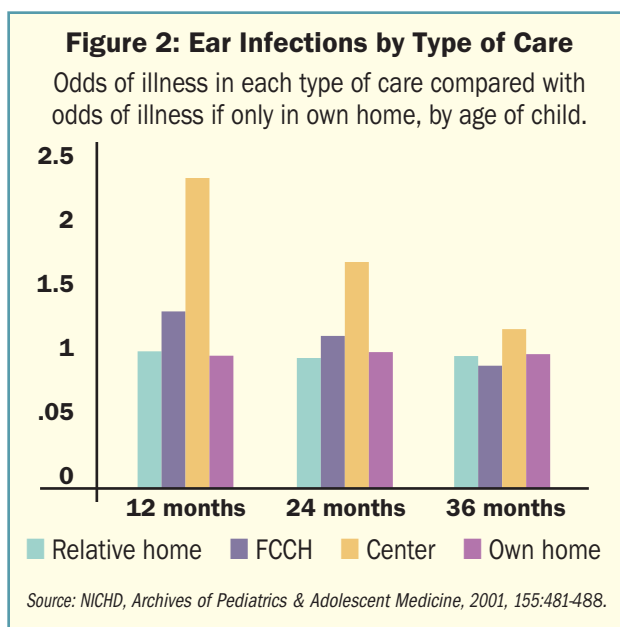
Among three-year-old children who entered care as infants, fewer common respiratory infections occur than for their peers who were never in group care (Cordell, MacDonald, Solomon, Jackson, Boase, 1990; Cordell, Waterman, Chang, Saruwatari, Brown, Solomon; 1999; National Institute of Child Health and Human Development Early Child Care Research Network, 2003). Also, the incidence of chronic illness does not seem to be increased by child care participation from infancy. Neither allergic rhinitis nor asthma was found to be increased by group care participation in a birth cohort followed to 10 years of age (Nafstad,

Brunekreef, Skrandal, & Nystad, 2005). Other factors play an unexplained role in infectious disease in child care settings, too. For example, children who use pacifiers in child care have an increased risk of acquiring ear infections compared with those who suck their thumbs (Niemela, Uhari, & Mottonen, 1995). Although the reason for this has not been explored, perhaps pacifiers that children carry around with them are washed less frequently than their hands.

How to make infection-control measures really work

Infectious disease experts talk about breaking the chain of infection — the links that bring germs to people through the places they occupy. Infection control occurs when fewer germs are around to challenge vulnerable people, when people have more resistance to the germs they encounter, and when places are managed to keep people from being exposed to more germs than they can resist. Each of these aspects deserves consideration by group care providers and those involved with group care settings. A health consultant can help by observing for risky practices, pointing out missed opportunities to reduce infectious illness, and reviewing written policies that the program uses to train staff and orient parents so they follow desired practices.

Providers can reduce the number of germs that are around by hand washing, washing and sanitizing contaminated surfaces, and by ventilating with fresh air. Small stable groups of children are less likely to bring new germs into the facility than constant turnover or intermixing of new children. Providers can teach and evaluate performance of staff on how and when to properly wash their hands and on the use of sanitary diaper changing techniques. Food storage and preparation routines should avoid contamination of food at



every step, with safe food temperatures checked with thermometers in the refrigerator, in the freezer, and in the food about to be served.

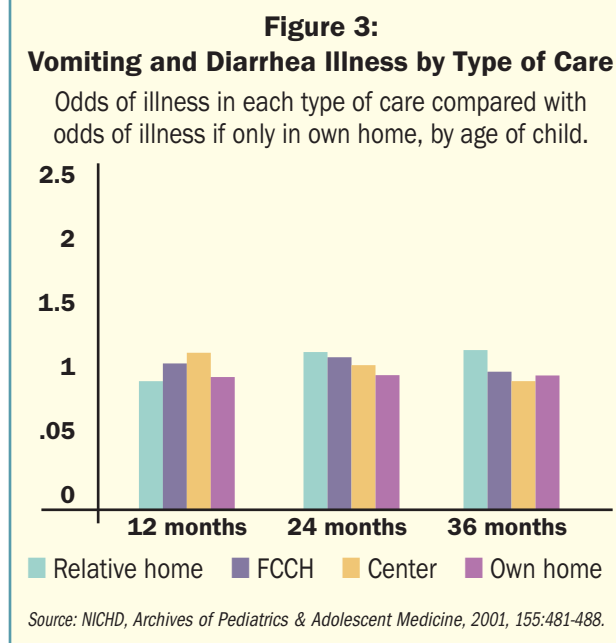
Cleaning and sanitizing helps if practiced routinely. A chart that details what surfaces should be cleaned and sanitized and how often is available in several publications. The chart is on page 106 of *Caring for Our Children, National Performance Standards: Guidelines for Out-of-Home Child Care* (2nd edition), 2002, available at no cost, electronically, on the Internet at www.nrc.uchsc.edu.

Studies conducted in early education and child care programs show that staff training improves hand washing and environmental hygiene. Improving these practices substantially reduces the incidence of both respiratory and gastrointestinal infections. The effects are age-group specific. When compliance with staff and child hand washing was

high, reduction in colds by 17% was observed only for children under 24 months of age, the group where such illness is most frequent. For diarrhea, the effects were limited to children over 24 months of age. In this group, reduction of diarrhea episodes by two-thirds was observed in centers where compliance with child hand-washing was high (Roberts, Smith, Jorn, Patel, Douglas, McGilchrist, 2000; Roberts, Jorn, Patel, Smith, Douglas,

McGilchrist, 2000). Of course most of the children under 24 months were being diapered, a process that requires more than hand-washing to avoid contaminating the environment.

Supervisors must ensure that these practices are taught and monitored continuously or they will be ignored. Everyone in child care should practice hand washing at each contact with a body fluid or a surface that is likely to be heavily contaminated, when moving



from one child care group to another, and before food handling. Liquid soap, running water, and dry skin lotion must be close at hand to make such frequent hand washing feasible. When plumbing costs make separate and accessible hand washing sinks impractical, sanitary portable sinks should be put into use.

Hand washing with soap and running water is best and necessary where there is any visible soil. Many early education providers have started to use alcohol-based hand rubs in situations where hand washing is difficult to ensure. These toxic and flammable products are effective only on visibly clean hands, and only when the product is applied in the amount and for the contact time recommended by the manufacturer.

When should sick children (and adults) stay home?

Illness associated with participation in group care settings is costly to families and staff. It also serves as a conduit of infection to family members and within the community. An infected child does not need to be excluded unless the child cannot participate in activities, requires care that exceeds caregiver resources, or the child's illness puts the other children at increased risk with continued exposure.

Since, for many infections, shedding of disease agents occurs before symptoms occur, removal of the symptomatic child who has already been in contact with others is fruitless. On the other hand, when children have infectious diarrhea, the contamination of the environment during diaper changing and from fecal accidents is overwhelming. For the purpose of decisions about exclusion from child care, infectious diarrhea is defined as more watery stools, decreased form of stool that is not associated with changes of diet, and increased frequency of passing stool. Using this definition, *Caring for Our Children* requires exclusion

of children with diarrhea that is not contained by an ability to use the toilet (American Academy of Pediatrics, American Public Health Association, and National Resource Center for Health and Safety in Child Care, 2002). All the specific exclusion criteria in *Caring for Our Children* are in the tables and fact sheets found in the AAP publication *Managing Infections in Child Care and Schools*.

Families need to have plans for the inevitability of their child's illness. Some communities have developed programs to care for ill children whose parents must work. Ill children benefit from familiar environments and well-established relationships for comfort and care. Arrangements that involve care by strangers in strange environments may add to the stress of illness. If used, special care arrangements for ill children should meet the ill child's physical and emotional needs.

How can staff and families stay healthy?

Many diseases that are transmitted in group care can infect others in the community, including caregivers, parents, and family members. The most important infections transmitted to adult contacts of children in group care are hepatitis A, cytomegalovirus, and parvovirus B19 (Reves & Pickering). Supervisors and co-workers need to be aware of signs of illness among the adults in the program. Dedicated adults tend to martyr themselves by working when they are ill — even though such a sacrifice may spread disease. Adults who care for children should be healthy enough to perform their duties well and have recommended preventive health care services for themselves (e.g., a yearly dose of influenza vaccine, oral health care that manages germs known to cause dental decay in adults and to spread these germs to children), and practice infection control to minimize

To make sense of germ control:

- Have an arrangement with a health professional to advise your program about how to prevent and manage infectious disease
- Implement healthful routines
- Practice good hand hygiene and surface sanitation
- Check your references to be sure you have what you need

exposing themselves and others to germs that cause illness.

Handy resources

The list of what should be on or immediately accessible to directors and staff includes books, a brochure, and some web sites.

Many directors have given rave reviews to the new *Managing Infectious Diseases in Child Care and Schools: A Quick Reference Guide*, a spiral-bound book from the American Academy of Pediatrics (2005). The book can be ordered from www.aap.org and www.naeyc.org. This is an easy-to-use and already very popular book. The first 29 pages are about how to prevent and manage infections. Pages 41 to page 129 are updated handouts for parents and staff about specific types of infections — with permission to make single copies for noncommercial, educational purposes. The last 24 pages include brief summaries on the role of the health consultant, immunizations, bioterrorism, followed by sample letters and forms, and a glossary of terms.

The primary reference for best health and safety practices in early education and child care is still *Caring for Our Children, the National Performance Standards: Guidelines for Out-of-Home Child Care* (2002). This book and online reference contains 707 standards and recommendations,

accompanied by the rationale for each. Health and safety experts from the American Academy of Pediatrics and the American Public Health Association worked with representatives from the early education and regulatory communities to develop *Caring for Our Children*, with support from the federal Maternal and Child Health Bureau. The publication is available in hard copy from www.aap.org, www.naeyc.org, and www.apha.org, as well as in downloadable format on the web site of the National Resource Center for Health and Safety in Child Care <http://nrc.uchsc.edu>. On this web site, you'll also find subsets of the standards compiled for selected topics. One of these is "Exclusion and Inclusion of Ill Children in Child Care Facilities and Care of Ill Children."

The National Association for the Education of Young Children has good information about preventing and managing infectious disease in the manual *Healthy Young Children*, and the inexpensive brochure, *Keeping Healthy*. NAEYC also distributes *Model Child Care Health Policies*, where you'll find fill-in-the-blank policies on care of acutely ill children, giving medications, and sanitation and hygiene. Order these publications from www.naeyc.org.

Other helpful tools can be found on the Internet. You'll find up-to-date, free, and easy-to-read discussions, posters, and handouts with excellent graphics at www.globalhealthychildcare.org and www.healthykids.us. The web sites of the Chapter of the American Academy of Pediatrics (www.ecels-healthychildcarepa) and of the national American Academy of Pediatrics (www.healthychildcare.org) have many helpful materials about this topic, too.

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